

## Progression in Computing

### Intent

We aim for children to have acquired the essential characteristics to be able to use technology positively, effectively and responsibly:

- Competence in coding for a variety of practical and inventive purposes, including the application of ideas within other subjects.
- The ability to connect with others safely and respectfully, understanding the need to act within the law and with moral and ethical integrity.
- An understanding of the connected nature of devices and their uses.
- The ability to communicate ideas well by using applications and devices throughout the curriculum.
- The ability to collect, organise and manipulate data effectively.

### Implementation:

- 1 Curriculum drivers (Spirituality, Opportunity, Equality, Aspiration and Communication) shape our curriculum breadth in Computing. They are derived from an exploration of the backgrounds of our students, our beliefs about high quality education and our values. They are used to ensure we give our students appropriate and ambitious curriculum opportunities.
- 2 Cultural capital gives our students the vital background knowledge required to be informed and thoughtful members of our community who understand and believe in British values.
- 3 Curriculum breadth is shaped by our curriculum drivers, cultural capital, subject topics and our ambition for students to study the best of what has been thought and said by many generations of academics and scholars.
- 4 Our curriculum distinguishes between subject topics and 'threshold concepts'. Subject topics are the specific aspects of subjects that are studied.
- 5 **Threshold concepts** tie together the subject topics into meaningful schema. The same concepts are explored in a wide breadth of topics. Through this 'forwards-and-backwards engineering' of the curriculum, students return to the same concepts over and over and gradually build understanding of them. In Computing, these threshold concepts are; **Computing Systems and Networks, Data and Information, Programming and Creating Media.**
- 6 Cognitive science tells us that working memory is limited and that cognitive load is too high if students are rushed through content. This limits the acquisition of long-term memory. Cognitive science also tells us that in order for students to become creative thinkers, or have a greater depth of understanding they must first master the basics, which takes time.
- 7 **Milestones:** For each of the threshold concepts three Milestones, each of which includes the procedural and Knowledge categories in each subject give students a way of expressing their understanding of the threshold concepts. Milestone 1 is taught across Years 1 and 2, milestone 2 is taught across Year 3 and 4 and milestone 3 is taught across Year 5 and Year 6
- 8 **Cognitive Domains:** Within each Milestone, students gradually progress in their procedural fluency and semantic strength through three cognitive domains: basic, advancing and deep. The goal for students is to display sustained mastery at the 'advancing' stage of understanding by the end of each milestone and for the most able to have a greater depth of understanding at the 'deep' stage.

Progression through the Cognitive Domains		
Basic	Advancing	Deep
Acquiring knowledge.	Applying knowledge.	Reasoning with knowledge.
Knowledge is explicit and unconnected.	Knowledge is explicit and connected.	Knowledge is connected and tacit.
Relying on working memory.	Drawing on long-term memory, freeing working memory to consider application.	Relies on long-term memory, freeing working memory to be inventive.
Procedures processed one at a time with conscious effort.	Procedures being automatic.	Automatic recall of procedures.
Understands only in the context in which the materials are presented.	Sees underlying concepts between familiar contexts.	Uses conceptual understanding in unfamiliar situations.
New information does not readily stick. Schemes are limited.	New information is linked to prior knowledge. Schemas are strong.	Readily assimilates new information into rapidly expanding schemas.
Struggles to search for problem solutions. Relies on means-end analysis.	Combines searching for problem solutions with means-end analysis.	Draws on a vast store of problem solutions.
Requires explicit instructions and models.	Uses models effectively.	Prefers discovery approaches to learning.

9. **Pedagogical Content Knowledge and Strategies:** As part of our progression model we use a different pedagogical style in each of the cognitive domains of basic, advancing and deep. This is based on the research of Sweller, Kirschner and Rosenshine who argue to direct instruction in the early stages of learning and discovery-based approaches later. We use direct instruction in the basic domain and problem based discovery in the deep domain. This is called the reversal effect.

10. Our curriculum design is based on evidence from cognitive science; three main principles underpin it:

- Learning is most effective with spaced repetition.
- Interleaving helps pupils to discriminate between topics and aids long-term retention.
- Retrieval of previously learned content is frequent and regular, which increases both storage and retrieval strength.

11. In addition to the three principles we also understand that learning is invisible in the short-term and that sustained mastery takes time.

12. Our content is subject specific. We make intra-curricular links to strengthen schema.

13. Continuous provision, in the form of daily routines, replaces the teaching of some aspects of the curriculum and, in other cases, provides retrieval practice for previously learned content.

Milestone 1 Key Stage 1	Milestone 2 Lower Key Stage 2	Milestone 3 Upper Key Stage 2
<b>Computer Science</b>		
<ul style="list-style-type: none"> <li>Define what an algorithm is.</li> <li>Create and debug simple programs.</li> <li>Know how logical reasoning can predict the behaviour of simple programs.</li> </ul>	<ul style="list-style-type: none"> <li>Know how algorithms work.</li> <li>Design, write and debug programs that accomplish specific goals.</li> <li>Use sequence and repetition in programs, works with variables and various forms of input and output.</li> <li>Use logical reasoning to detect and debug errors.</li> </ul>	<ul style="list-style-type: none"> <li>Know and explain how algorithms work.</li> <li>Design, write and debug algorithms and programs (including controlling or stimulating physical systems).</li> <li>Use sequence, selection and repetition in programs.</li> <li>Use logical reasoning to explain how some algorithms work and use this to detect and debug errors.</li> </ul>

Milestone 1 Key Stage 1	Milestone 2 Lower Key Stage 2	Milestone 3 Upper Key Stage 2
<b>Information Technology</b>		
<ul style="list-style-type: none"> <li>Identify technology that is used in today's society</li> <li>Operate simple equipment.</li> <li>Label, count and describe objects, compare them and collect and explain data using the objects.</li> <li>Use a range of technological tools to create digital media.</li> </ul>	<ul style="list-style-type: none"> <li>Explain how digital devices work.</li> <li>Understand computing networks and explain how they work.</li> <li>Create groups of data and understand what a database is. Explain how data can be collected over time and analysed.</li> <li>Select and use a variety of software to purposefully create and edit digital media.</li> </ul>	<ul style="list-style-type: none"> <li>Describe how information can be shared online and how the internet allows us to collect information.</li> <li>Explain the different ways in which people communicate using technology.</li> <li>Use different computer programs to record information.</li> <li>Select and use a variety of software to purposefully create, edit and evaluate digital media (including 3D models)</li> </ul>

Milestone 1 Key Stage 1	Milestone 2 Lower Key Stage 2	Milestone 3 Upper Key Stage 2
<b>Digital Literacy</b>		
<ul style="list-style-type: none"> <li>Identify how to use technology respectfully and safely.</li> <li>Know that personal information must be kept private.</li> <li>Identify where to go for support if needed.</li> </ul>	<ul style="list-style-type: none"> <li>Use technology safely, respectfully and responsibly.</li> <li>Recognise acceptable and unacceptable behaviour.</li> </ul>	<ul style="list-style-type: none"> <li>Use technology safely, respectfully and responsibly.</li> <li>Recognise acceptable and unacceptable behaviour.</li> <li>Identify a range of ways to report concerns about content and contact.</li> <li>Use search technologies effectively, appreciating how results are ranked and</li> </ul>

		be discerning in evaluating digital content.
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# National Curriculum - Key stage 1

Pupils should be taught to:

- understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

# National Curriculum - Key stage 2

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Sequence of learning (see knowledge maps for progression of cognitive domains throughout each year group) When a year group is shown in a bracket, that corresponds to the year group that the Teach Computing curriculum places that topic in:

	Year 1	Year 2	Year 3/4	Year 5/6
Advent 1 Year A	Technology Around Us	IT Around Us	Desktop Publishing (Y3)	Video Production (Y5)
Advent 1 Year B			Connecting Computers (Y3)	Systems and Searching (Y5)
Advent 2 Year A	Digital Painting	Digital Photography	Branching Databases (Y3)	Flat-file Databases (Y5)
Advent 2 Year B			Programming A – Sequencing Sounds (Y3)	Programming A – Selection in Physical Computing (Y5)
Lent 1 Year A	Moving a Robot	Robot Algorithms	Audio Production (Y4)	Web Page Creation (Y6)
Lent 1 Year B			The Internet (Y4)	Communication and Collaboration (Y6)
Lent 2 Year A	Grouping Data	Pictograms	Data Logging (Y4)	Introduction to Spreadsheets (Y6)
Lent 2 Year B			Programming B – Events and Actions in Programs (Y3)	Programming B – Selection in Quizzes (Y5)
Pentecost 1 Year A	Digital Writing	Digital Music	Photo Editing (Y4)	Introduction to Vector Graphics (Y5)
Pentecost 1 Year B			Programming A – Repetition in Shapes (Y4)	Programming A – Variables in Games (Y6)
Pentecost 2 Year A	Programming Animations	Programming Quizzes	Stop-frame Animation (Y3)	3D Modelling (Y6)
Pentecost 2 Year B			Programming B – Repetition in Games (Y4)	Programming B – Sensing Movement (Y6)

Online Safety using Project Evolve and Education for a Connected World resources (one strand is taught across every year group per half term, see online safety knowledge map to see progression of cognitive domains throughout the year groups):

	Advent 1	Advent 2	Lent 1	Lent 2	Pentecost 1	Pentecost 2
Strand	Self-Image and Identity	Online Reputation	Managing Online Information	Health, Wellbeing and Lifestyle	Privacy and Security	Copyright and Ownership

<b>EYFS PITA Statements and ELGS:</b>  <b>Area of Learning:</b> Personal, Social and Emotional Development Managing Self Expressive Arts and Design Creating with Materials  <b>Early Learning Goals:</b> Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. Explain the reasons for rules, know right from wrong and try to behave accordingly. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.  Throughout the year, computing is accessible and embedded through Continuous Provision	Teaching Sequence and Learning Objectives						
		Year 1	Year 2	Year 3/4	Year 3/4	Year 5/6	Year 5/6
	Computing Systems and Networks (KS2 Year B)	Computing systems and networks – Technology around us	Computing systems and networks – IT around us	(Y3 Unit) Computing systems and networks – Connecting computers	(Y4 Unit) Computing systems and networks – The Internet	(Y5 Unit) Computing systems and networks – Sharing information	(Y6 Unit) Computing systems and networks – Communication
		To identify technology	To recognise the uses and features of information technology	To explain how digital devices function	To describe how networks physically connect to other networks	To explain that computers can be connected together to form systems	To identify how to use a search engine
		To identify a computer and its main parts	To identify the uses of information technology in the school	To identify input and output devices	To recognise how networked devices make up the internet	To recognise the role of computer systems in our lives	To describe how search engines select results
		To use a mouse in different ways	To identify information technology beyond school	To recognise how digital devices can change the way we work	To outline how websites can be shared via the World Wide Web (WWW)	To recognise how information is transferred over the internet	To explain how search results are ranked
		To use a keyboard to type on a computer	To explain how information technology helps us	To explain how a computer network can be used to share information	To describe how content can be added and accessed on the World Wide Web (WWW)	To explain how sharing information online lets people in different places work together	To recognise why the order of results is important, and to whom
		To use the keyboard to edit text	To explain how to use information technology safely	To explore how digital devices can be connected	To recognise how the content of the WWW is created by people	To contribute to a shared project online	To recognise how we communicate using technology
		To create rules for using technology responsibly	To recognise that choices are made when using information technology	To recognise the physical components of a network	To evaluate the consequences of unreliable content	To evaluate different ways of working together online	To evaluate different methods of online communication
	Creating Media (KS2)	Creating media – Digital painting	Creating media – Digital photography	(Y3 Unit) Creating media – Animation	(Y4 Unit) Creating media – Audio editing	(Y5 Unit) Creating media – Video editing	(Y6 Unit) Creating media – Web page creation

and through general teaching.						
	To describe what different freehand tools do	To use a digital device to take a photograph	To explain that animation is a sequence of drawings or photographs	To identify that sound can be digitally recorded	To explain what makes a video effective	To review an existing website and consider its structure
	To use the shape tool and the line tools	To make choices when taking a photograph	To relate animated movement with a sequence of images	To use a digital device to record sound	To identify digital devices that can record video	To plan the features of a web page
	To make careful choices when painting a digital picture	To describe what makes a good photograph	To plan an animation	To explain that a digital recording is stored as a file	To capture video using a range of techniques	To consider the ownership and use of images (copyright)
	To explain why I chose the tools I used	To decide how photographs can be improved	To identify the need to work consistently and carefully	To explain that audio can be changed through editing	To create a storyboard	To recognise the need to preview pages
	To use a computer on my own to paint a picture	To use tools to change an image	To review and improve an animation	To show that different types of audio can be combined and played together	To identify that video can be improved through reshooting and editing	To outline the need for a navigation path
	To compare painting a picture on a computer and on paper	To recognise that photos can be changed	To evaluate the impact of adding other media to an animation	To evaluate editing choices made	To consider the impact of the choices made when making and sharing a video	To recognise the implications of linking to content owned by other people
	<b>Creating media – Digital writing</b>	<b>Creating media – Making music</b>	<b>(Y3 Unit) Creating media – Desktop publishing</b>	<b>(Y4 Unit) Creating media – Photo editing</b>	<b>(Y5 Unit) Creating media – Vector drawing</b>	<b>(Y6 Unit) Creating media – 3D Modelling</b>
	To use a computer to write	To say how music can make us feel	To recognise how text and images convey information	To explain that digital images can be changed	To identify that drawing tools can be used to produce different outcomes	To use a computer to create and manipulate three-dimensional (3D) digital objects
	To add and remove text on a computer	To identify that there are patterns in music	To recognise that text and layout can be edited	To change the composition of an image	To create a vector drawing by combining shapes	To compare working digitally with 2D and 3D graphics
	To identify that the look of text can be changed on a computer	To show how music is made from a series of notes	To choose appropriate page settings	To describe how images can be changed for different uses	To use tools to achieve a desired effect	To construct a digital 3D model of a physical object
	To make careful choices when changing text	To show how music is made from a series of notes	To add content to a desktop publishing publication	To make good choices when selecting different tools	To recognise that vector drawings consist of layers	To identify that physical objects can be broken down into a collection of 3D shapes
	To explain why I used the tools that I chose	To create music for a purpose	To consider how different layouts can suit different purposes	To recognise that not all images are real	To group objects to make them easier to work with	To design a digital model by combining 3D objects
	To compare typing on a computer to writing on paper	To review and refine our computer work	To consider the benefits of desktop publishing	To evaluate how changes can improve an image	To evaluate my vector drawing	To develop and improve a digital 3D model

	Data and Information (KS2 Year A)	Data and information – Grouping data	Data and information – Pictograms	(Y3 Unit) Data and information – Branching databases	(Y4 Unit) Data and Information – Data Logging	(Y5 Unit) Data and Information – Flat-file Databases	(Y6 Unit) Data and information – Spreadsheets
		To label objects	To recognise that we can count and compare objects using tally charts	To create questions with yes/no answers	To explain that data gathered over time can be used to answer questions	To use a form to record information	To identify questions which can be answered using data
		To identify that objects can be counted	To recognise that objects can be represented as pictures	To identify the object attributes needed to collect relevant data	To use a digital device to collect data automatically	To compare paper and computer-based databases	To explain that objects can be described using data
		To describe objects in different ways	To create a pictogram	To create a branching database	To explain that a data logger collects 'data points' from sensors over time	To outline how grouping and then sorting data allows us to answer questions	To explain that formulas can be used to produce calculated data
		To count objects with the same properties	To select objects by attribute and make comparisons	To explain why it is helpful for a database to be well structured	To use data collected over a long duration to find information	To explain that tools can be used to select specific data	To apply formulas to data, including duplicating
		To compare groups of objects	To recognise that people can be described by attributes	To identify objects using a branching database	To identify the data needed to answer questions	To explain that computer programs can be used to compare data visually	To create a spreadsheet to plan an event
		To answer questions about groups of objects	To explain that we can present information using a computer	To compare the information shown in a pictogram with a branching database	To use collected data to answer questions	To apply my knowledge of a database to ask and answer real-world questions	To choose suitable ways to present data
Programming (KS2 Year B)	Programming A – Moving a robot	Programming A – Robot algorithms	(Y3 Unit) Programming A – Sequence in music	(Y4 Unit) Programming A - Repetition in Shapes	(Y5 Unit) Programming A – Selection in physical computing	(Y6 Unit) Programming A – Variables in games	
	To explain what a given command will do	To describe a series of instructions as a sequence	To explore a new programming environment	To identify that accuracy in programming is important	To control a simple circuit connected to a computer	To review an existing website and consider its structure	
	To act out a given word	To explain what happens when we change the order of instructions	To identify that commands have an outcome	To create a program in a text-based language	To write a program that includes count-controlled loops	To plan the features of a web page	

		To combine forwards and backwards commands to make a sequence	To use logical reasoning to predict the outcome of a program (series of commands)	To explain that a program has a start	To explain what 'repeat' means	To explain that a loop can stop when a condition is met	To consider the ownership and use of images (copyright)
		To combine four direction commands to make sequences	To explain that programming projects can have code and artwork	To recognise that a sequence of commands can have an order	To modify a count-controlled loop to produce a given outcome	To explain that a loop can be used to repeatedly check whether a condition has been met	To recognise the need to preview pages
		To plan a simple program	To design an algorithm	To change the appearance of my project	To decompose a task into small steps	To design a physical project that includes selection	To outline the need for a navigation path
		To find more than one solution to a problem	To create and debug a program that I have written	To create a project from a task description	To create a program that uses count-controlled loops to produce a given outcome	To create a program that controls a physical computing project	To recognise the implications of linking to content owned by other people
		<b>Programming B – Introduction to animation</b>	<b>Programming B – An introduction to quizzes</b>	<b>(Y3 Unit) Programming B – Events and actions</b>	<b>(Y4 Unit) Programming B – Repetition in games</b>	<b>(Y5 Unit) Programming B – Selection in quizzes</b>	<b>(Y6 Unit) Programming B – Sensing</b>
		To choose a command for a given purpose	To explain that a sequence of commands has a start	To explain how a sprite moves in an existing project	To develop the use of count-controlled loops in a different programming environment	To explain how selection is used in computer programs	To create a program to run on a controllable device
		To show that a series of commands can be joined together	To explain that a sequence of commands has an outcome	To create a program to move a sprite in four directions	To explain that in programming there are infinite loops and count controlled loops	To relate that a conditional statement connects a condition to an outcome	To explain that selection can control the flow of a program
		To identify the effect of changing a value	To create a program using a given design	To adapt a program to a new context	To develop a design that includes two or more loops which run at the same time	To explain how selection directs the flow of a program	To update a variable with a user input
		To explain that each sprite has its own instructions	To change a given design	To develop my program by adding features	To modify an infinite loop in a given program	To design a program which uses selection	To use an conditional statement to compare a variable to a value
		To design the parts of a project	To create a program using my own design	To identify and fix bugs in a program	To design a project that includes repetition	To create a program which uses selection	To design a project that uses inputs and outputs on a controllable device
		To use my algorithm to create a program	To decide how my project can be improved	To design and create a maze-based challenge	To create a project that includes repetition	To evaluate my program	To develop a program to use inputs and outputs on a controllable device

EYFS		Progression of Vocabulary
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		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Computer Systems and Networks (KS2 Year B)	Computing systems and networks – Technology around us	Computing systems and networks – IT around us	(Y3 Unit) Computing systems and networks – Connecting computers  YEAR B	(Y4 Unit) Computing systems and networks – The Internet  YEAR B	(Y5 Unit) Computing systems and networks – Systems and Searching  YEAR B	(Y5 Unit) Computing Systems and networks – Communication and Collaboration  YEAR B
		Tier 2					
		Technology Laptop Computer Desktop Mouse Trackpad Login Username Password Keyboard Edit Spacebar	Device	Input Process Output		Rank	Internet Collaboration Security Privacy Communication Header Copyright
		Tier 3					
			Information technology <i>Examples of IT- Barcode scanner, printer, tablet, chip and pin machine, card reader</i>	Network Network components Server Wireless Access Point Network switch	Router World Wide Web Online content	Digital system Physical connection Electronic connection Computer system Search engine Web search Web crawler Seach engine index Content creator	Web address IP address Domain Name Server (DNS) Data packet Data payload

	Creating Media (KS2 Year A)	Creating media - Digital painting	Creating media - Digital photography	(Y3 Unit) Creating media - Animation YEAR A	(Y4 Unit) Creating media - Audio editing YEAR A	(Y5 Unit) Creating media - Video production	(Y6 Unit) Creating media - Webpage creation
		Tier 2					
		Paint tools- fill, brush, shape, line undo Save Retrieve	Capture Digital photograph Portrait Landscape Format Photography composition Retake Effects Edit Adjust	Animation Frame Story board	Microphone Copyright Recording Import Align	Store Retrieve Export Reshoot	Copyright
		Tier 3					
			Artificial light Natural light Camera focus	Stop-frame animation Sequence of frames Onion skinning	Input device Output device Podcast Soundwave view 'Trim' recording Layers (in recording) Sound effect Background music Audio file	Visual media	HTML code Web layout Copyright-free Fair use Navigation path Hyperlink User experience

		<b>Creating media - Digital writing</b>	<b>Creating media - Making music</b>	<b>(Y3 Unit) Creating media - Desktop publishing</b>  YEAR A	<b>(Y4 Unit) Creating media - Photo editing</b>  YEAR A	<b>(Y5 Unit) Creating Media - Introduction to Vector Graphics</b>  YEAR A	<b>(Y5 Unit) Creating Media - 3D Modelling</b>  YEAR A
		<b>Tier 2</b>					
		Keys Space Backspace Bold Italic Underline Double click Font Undo	Rhythm Rhythm pattern Pitch Musical pattern Sequence of notes	Text Image Return Shift Template Place holder Layout	Rotate Crop Filter Colour effect Cloning Duplicate	Layers Duplicate (images) Group and ungroup (images)	Lift Lower Re-colour Placeholders
		<b>Tier 3</b>					
		Word processor Caps Lock		Desktop publishing Page orientation	Photo retouch Combined image	Vector Vector drawing Alignment grid Resize handle Zoom tool	3D model Three dimensions
	<b>Data and Information (KS2 Year A)</b>	<b>Data and information - Grouping data</b>	<b>Data and information - Pictograms</b>	<b>(Y3 Unit) Data and Information - Branching Databases</b>  YEAR A	<b>(Y4 Unit) Data and Information - Data Logging</b>  YEAR A	<b>(Y5 Unit) Data and Information - Flat-file Databases</b>  YEAR A	<b>(Y6 Unit) Data and Information - Introduction to Spreadsheets</b>  YEAR A
		<b>Tier 2</b>					

		Object Label Group Data Properties Classify	Tally Count Compare Attributes			Sorting Grouping	Duplicate
		Tier 3					
			Pictogram Block diagram	Tree structure Branching database	Data logger Data set Data collection Sensors Data points Data file Logged data	Record Field Database	Data input Spreadsheet Cell Cell format Produce calculated data Formula Cell references
	Programming (KS2 Year B)	Programming A - Moving a robot	Programming A - Robot algorithms	(Y3 Unit) Programming A - Sequence in music  YEAR B	(Y4 Unit) Programming A - Repetition in Shapes  YEAR B	(Y5 Unit) Programming A - Selection in Physical Computing  YEAR B	(Y6 Unit) Programming A - Variables in Games  YEAR B
		Tier 2					
		Robot Direction Command Sequence Predict Program Run	Outcome Execute (run)	Backdrop Code Motion Stage	Repeat Loop Decompose/ decomposition Procedures	Circuit Component Infinite loop Condition Action	Variable Value

		Tier 3					
			Algorithm	Scratch Motion block Event block	Logo command Code snippet Count controlled loop	Crumble controller Programming environment Microcontroller Crumble Sparkle Count-controlled loop Conditional loop Selection	Program variable
		Programming B - Introduction to animation	Programming B - An introduction to quizzes	(Y3 Unit) Programming B - Events and Actions in Programs YEAR B	(Y4 Unit) Programming B - Repetition in games YEAR B	(Y5 Unit) Programming B - Selection in Quizzes YEAR B	(Y6 Unit) Programming B - Sensing Movement YEAR B
		Tier 2					
		Programming Value Animation	Background Modify	Event Action Code Outcome	Loop	Conditions Structure	Input Process Output Device
		Tier 3					

		Sprite Start block Algorithm Programming area Programming block	Green flag (Within scratch Jr.) Debug	Programming extension Pen extension Pen down block Bugs Debugging Pen trail Set up block	Count-controlled loop Snippet of code Infinite loop Event block Code blocks	'if...then...else' Program flow Branching structure Setup code	Micro:bit Emulator Controllable device Selection Accelerometer Operand
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